

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A handover method for a wireless mobile ad-hoc network (~~2300, 2400, 2500, 2600, and 2700~~) comprising a number of including interconnected mobile nodes (~~MN, M1, M2, M3, M4, EN1, and EN2~~), wherein ~~the a~~ connectivity of ~~these the~~ nodes is time-varying, ~~said handover the method being characterized by the following steps comprising:~~

[[~~-~~]] ~~proactively probing (S1) QoS~~ determining Quality of Service (QoS) resources of each potential routing path between a mobile node (~~MN~~) and its a correspondent node (~~CN~~);

[[~~-~~]] ~~pre-allocating (S2) the~~ QoS resources along at least one potential routing paths path in advance before ~~the initiating a~~ handover of a data flow to be transmitted from the mobile node (~~MN~~) to its the correspondent node (~~CN~~) via a selected routing path ~~is initiated;~~ and

[[~~-~~]] ~~redirecting (S3a) the data flow to the a~~ routing path with ~~the~~ best available QoS capabilities as the selected routing path and, in case of sufficient QoS capabilities, reserving (~~S3b~~) the determined QoS resources for the ~~handled~~ data flow to be transmitted via the selected routing path.

Claim 2 (Currently Amended): A The handover method according to claim 1, further comprising:

~~characterized by the step of~~

informing (~~S5~~) running applications about an upcoming handover event.

Claim 3 (Currently Amended): A The handover method according to ~~anyone of the~~
~~preceding claims, claim 1, further comprising:~~
~~characterized by the step of~~
announcing (S6) QoS parameters that can be expected after a completing the
handover ~~procedure is finished.~~

Claim 4 (Currently Amended): A The handover method according to ~~anyone of the~~
~~preceding claims, claim 1, further comprising:~~
~~characterized by the step of~~
pre-actively propagating (S7) address-mapping information in the mobile ad-hoc
network.

Claim 5 (Currently Amended): A The handover method according to ~~anyone of the~~
~~claims 1 to 4, claim 1, further comprising:~~
~~characterized in that~~
applying soft reservation (SR) requests ~~are applied~~ to reserve, update and monitor
QoS parameters along a ~~specific~~ routing path between the mobile node (MN) and the
correspondent node (CN) ~~of said mobile node (MN).~~

Claim 6 (Currently Amended): A The handover method according to ~~anyone of the~~
~~claims 1 to 4, claim 1, further comprising:~~
~~characterized in that~~

applying hard reservation (HR) requests ~~are applied~~ to reserve, change or remove predefined QoS parameters on a ~~specific~~ routing path between the mobile node (MN) and the correspondent node (CN) ~~of said mobile node (MN)~~.

Claim 7 (Currently Amended): A The handover method according to ~~anyone of the~~ ~~claims 1 to 6~~, claim 1, further comprising:

~~characterized by the step of~~
~~releasing (S8) reserved~~ pre-allocated resources on ~~other probed~~ the at least one potential routing ~~paths~~ path other than the selected routing path.

Claim 8 (Currently Amended): A The handover method according to ~~anyone of the~~ ~~claims 1 to 7~~, claim 1, further comprising:

~~wherein moving a mobile node (MN) moving out of its a covering range of the mobile node; communicates with a correspondent node (CN) connected to the network via a number of intermediate network nodes (M1, M2, M3, M4, EN1, EN2, AR1, AR2, R1, and R2) forwarding the data flow to be transmitted between said mobile node (MN) and its correspondent node (CN), characterized in that the mobile node (MN) performs the following steps:~~

[[-]] ~~pre-selecting (S9) handover candidate nodes from a number of potential handover candidate nodes in the interconnected mobile nodes (M1, M2, M3, and M4) indicating a stable signal strength in the environment of the mobile node (MN) dependent on the a received signal power of RF signals received via these said handover candidate nodes (M1, M2, M3, and M4);~~

[[--]] sending (S10) a handover initiation message to the correspondent node (CN) to initiate a handover from the mobile node (MN) to one of said handover candidate nodes (M1, M2, M3, and M4);

[[--]] selecting (S11) the handover candidate node (M2) which offers the including best available QoS ~~metrics~~ capabilities on ~~the a~~ a routing path from the mobile node (MN) to the correspondent node (CN) based on ~~the~~ information contained in a handover QoS metrics collection message received from the ~~respective~~ handover candidate nodes (M1, M2, M3, and M4); and

[[--]] performing hop-by-hop sending (S12) a ~~Handover Confirmation Message~~, of a handover confirmation message with an embedded bandwidth reservation request piggybacked within ~~the~~ traffic from the mobile node (MN) via the ~~respectively~~ selected handover candidate node (M2) to the correspondent node (CN).

Claim 9 (Currently Amended): A The handover method according to claim 8, ~~characterized in that~~ wherein the correspondent node (CN) performs the following steps:

[[--]] sending (S13) a handover QoS metrics probing message hop-by-hop to each handover candidate node (M1, M2, M3, and M4) and;

[[--]] performing (S14) a QoS probing procedure for analyzing ~~the~~ QoS ~~metrics~~ capabilities of each ~~potential~~ handover candidate node (M1, M2, M3, and M4) ~~as well as~~; and performing a resource pre-allocation along the at least one potential routing ~~paths~~ path between the mobile node (MN) and its the correspondent node (CN).

Claim 10 (Currently Amended): A The handover method according to claim 9,
~~characterized in that~~ wherein each handover candidate node (~~M1, M2, M3, and M4~~)
performs the following ~~steps~~:

[[-]] executing (~~S15~~) a QoS metrics collection procedure; and

[[-]] sending (~~S16~~) a handover QoS metrics collection message as a reply message
to ~~the~~ a handover QoS metrics probing message received from the correspondent node (~~CN~~)
to ~~the mobile node (MN)~~ to inform the mobile node (~~MN~~) of the QoS ~~capability~~ capabilities
of each handover candidate node (~~M1, M2, M3, and M4~~).

Claim 11 (Currently Amended): A The handover method according to ~~anyone of the~~
~~claims 1 to 7~~ claim 1, wherein [[-]] a the mobile node (~~MN~~) communicates with its the
correspondent node (~~CN~~) ~~connected to the dynamic mobile ad-hoc network via a number of~~
plural intermediate network nodes in the interconnected mobile nodes, (~~M1, M2, M3, M4,~~
~~EN1, EN2, AR1, AR2, R1, and R2~~) forwarding the data flow to be transmitted between said
mobile node (~~MN~~) and the correspondent node (~~CN~~) and [[-]] at least one of the moved
intermediate network nodes (~~M1~~) is moving node moves out of its a covering range of the at
least one moved intermediate network node, ~~characterized in that~~ and the respective at least
one intermediate node (~~M1~~) ~~which moves out of its covering range~~ performs the following
steps:

[[-]] pre-selecting (~~S17~~) nodes from a ~~number of potential~~ handover
candidate nodes (~~M2, M3, and M4~~) indicating a stable signal strength in the environment of
the moving intermediate node (~~M1~~) dependent on the received signal power of RF signals
received via ~~these~~ the handover candidate nodes; (~~M2, M3, and M4~~) and

[[−]] sending (S18) a ~~„Handover Initiation Message,~~ a handover initiation message to its ~~a~~ one-hop neighbor node (EN1) on the routing path towards the correspondent node (CN) to initiate a handover from the at least one moved intermediate network node (M1) to one of said handover candidate nodes (M2, M3, ~~or~~ M4).

Claim 12 (Currently Amended): A The handover method according to claim 11, ~~characterized in that wherein~~ the one-hop neighbor node (EN1) of the ~~moving~~ at least one moved intermediate network node (M1) on the routing path from the mobile node (MN) towards its the correspondent node (CN) performs the following steps:

[[−]] sending (S19) a ~~„Handover QoS Metrics Probing Message,~~ a handover QoS metrics probing message hop-by-hop to each handover candidate node (M2, M3, ~~and~~ M4) to probe the QoS ~~metrics~~ capabilities on ~~the each~~ routing path towards ~~these the~~ the handover candidate nodes; (M2, M3, ~~and~~ M4) and

[[−]] performing (S20) a QoS probing procedure for analyzing the QoS ~~metrics~~ capabilities of each ~~potential~~ handover candidate node (M2, M3, ~~and~~ M4) as well as; and performing a resource pre-allocation along potential routing paths between the mobile node (MN) and its the correspondent node (CN) via said one-hop neighbor node (EN1).

Claim 13 (Currently Amended): A The handover method according to claim 12, wherein ~~characterized in that~~ each handover candidate node (M2, M3, M4) performs the following steps:

[[−]] executing (S21) a QoS metrics collection procedure; and

[[-]] sending (S22) a ~~„Handover QoS Metrics Collection Message,~~ a handover QoS metrics collection message as a reply message to the ~~„Handover QoS Metrics Probing Message,~~ handover QoS metrics probing message received from the one-hop neighbor node (EN1) of the ~~moving~~ moved intermediate network node (M1) on the routing path from the mobile node (MN) towards its the correspondent node (CN) to ~~the~~ an opposite one-hop neighbor node (EN2) of the ~~moving~~ moved intermediate network node (M1) on the routing path from the mobile node (MN) towards its the correspondent node (CN) to inform ~~this~~ the opposite one-hop neighbor node (EN2) of the QoS ~~capability~~ capabilities of each handover candidate node (M2, M3, and M4).

Claim 14 (Currently Amended): A The handover method according to claim 13, ~~characterized in that~~ further comprising:

~~the opposite one-hop neighbor node (EN2) of the moving intermediate network node (M1) on the routing path from the mobile node (MN) towards its correspondent node (CN) performs the step of selecting, by the opposite one-hop neighbor node, a (S23) the handover candidate node (M3) which offers the best available QoS metrics~~ capabilities on the routing path from the mobile node (MN) to the correspondent node (CN) based on the information contained in a ~~„Handover QoS Metrics Collection Message,~~ the handover QoS metrics collection messages received from the ~~respective~~ handover candidate nodes (M2, M3, M4).

Claim 15 (Currently Amended): A The handover method according to claim 14, ~~characterized in that~~ further comprising:

performing, by the mobile node, (MN) performs the step of hop-by-hop sending (S24)
a „Handover Confirmation Message,, of a handover confirmation message with an embedded
bandwidth reservation request piggybacked within the traffic from the mobile node (MN) to
the correspondent node (CN) via the ~~respectively~~ selected handover candidate node (M3).

Claim 16 (Currently Amended): A cellular telecommunication network with QoS-
aware handover management functionality providing a handover method according to ~~anyone~~
~~of the claims 1 to 15~~ claim 1.

Claim 17 (Currently Amended): A mobile base station ~~designed for supporting a~~
~~method according to anyone of the preceding claims, comprising:~~

a determining unit configured to determine Quality of Service (QoS) resources of
each potential routing path to a correspondent node;

a pre-allocating unit configured to pre-allocate the QoS resources along at least one
potential routing path in advance before initiating a handover of a data flow to be transmitted
to the correspondent node via a selected routing path;

a redirecting unit configured to redirect the data flow to a routing path with best
available QoS capabilities as the selected routing path and, in case of sufficient QoS
capabilities, reserve QoS resources for the data flow to be transmitted via the selected routing
path.

Claim 18 (Currently Amended): A computer ~~program product, implementing a~~
~~method according to anyone of the preceding claims when running on a node of a mobile ad-~~

hoe-network readable medium including computer executable instructions, wherein the instructions, when executed by a processor, cause the processor to perform a method comprising:

determining Quality of Service (QoS) resources of each potential routing path between a mobile node and a correspondent node;

pre-allocating the QoS resources along at least one potential routing path in advance before initiating a handover of a data flow to be transmitted from the mobile node to the correspondent node via a selected routing path; and

redirecting the data flow to a routing path with best available QoS capabilities as the selected routing path and, in case of sufficient QoS capabilities, reserving the determined QoS resources for the data flow to be transmitted via the selected routing path.